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by Professor O. Beccari at Amboina and by this explorer, who went in company with D'Albertis to New Guinea, together with collections from other parts of the Malay Archipelago. Dr. Thorell prefaces his work with valuable remarks on the geographical distribution of the spiders of this region and gives a full account of what has been done in the field by his predecessors.

THE DISTRIBUTION OF NORTH AMERICAN FRESH WATER MOLUSCA.¹—Professor Wetherby's endeavor, in this interesting article, is to trace the causes which have led to the great differentiation of the fresh-water mollusks and to distinguish the various faunæ. The Limneidæ, circumpolar in their distribution, are most abundant in the lake region of the Archæan lands, and are essentially lacustrine, although a few are fluviatile. The Unionidæ are most abundant in the region drained by the Ohio, and the typical Ohio forms are continued across the Mississippi to the Rocky Mountains and southward to Texas, but in vastly diminished numbers. South of the Ohio and east of the Mississippi, both within and without the Ohio drainage, many of the Unionidæ are evidently closely related to Ohio types, but along with them, principally in small mountain streams, occur species which have a very different facies, and belong to a different fauna. Such are *U. spinosus* and *U. collinus*, the only spinous Uniones.

The Strepomatidæ first appear in New York, and are almost confined to the district occupied by the peculiar Unionidæ just mentioned. They do not cross the Mississippi, and are chiefly found in mountain streams.

The Unionid genus *Anodonta* is abundant with the Limneidæ of the Archæan lake regions, and plentiful over the northern part of the region occupied by the Uniones, but gives way southward to *Unio*. Most of the described species of *Anodonta* and *Unio* are mere varieties, and even Dr. Lea has to confess that he can find no satisfactory anatomical differences in the latter genus, yet there are many types that must be called species.

Reviewing these facts, Professor Wetherby concludes that the Limneidæ form the oldest fauna, and that the typical Ohio forms spread from the Palæozoic lands of the Northern States, and are older than those found in the Mesozoic and Tertiary regions of the South.

These latter he refers to a Palæozoic ancestor whose home was in the western archæan region.

All fresh-water mollusks were originally lacustrine, adapted themselves first to the change from salt to fresh water, and afterwards to the more rapid change caused by the elevation of mountain ranges, and the conversion of lakes into flowing water. Hence the most striking and peculiar forms are found in the mountain streams of newer regions and have not yet had time to

¹On the Geographical Distribution of Certain Fresh Water Mollusks of North America. By A. G. WETHERBY, A. M. Jour. Cincin. Soc. Nat. Hist., July, 1881.

spread. All the species, originating in the head-waters, propagated down-stream, and thus arose the overlapping of faunas, and probably the disappearance of many faunæ as peculiar as is that of the Alabama, which contains, besides some distinctive Unios and a singular Goniobasis, two Strepomatid genera, Schizostoma and Tulotoma, with thirty species, none of which were found elsewhere.

ZITTEL'S HANDBUCH DER PALÆONTOLOGIE.¹—This standard and fresh work on general palæontology is slowly appearing in numbers, the present one beginning the treatment of the Mollusca. One important feature of the present number are the two hundred excellent wood-cuts of fossil Lamellibranchs. The orders, families and leading genera are briefly described and the typical species mentioned. The systematic portion is succeeded by a brief section on the distribution of Lamellibranchs in geological time. It appears that of all fossil mollusks the Lamellibranchs constituted a fourth part in the palæozoic period, in the Jura and chalk periods one-half, and in the Tertiary period a third part.

MARTIN AND MOALE'S HOW TO DISSECT A CHELONIAN.²—This little book is the first of a series designed to form a handbook of vertebrate dissections. The directions given are meant for use in connection with lectures, and the reading of a good text-book and some knowledge of human osteology on the part of the dissector is assumed by the author. The species dissected is the red-bellied, slider terrapin (*Pseudemys rugosa*). After stating the zoölogical position of this terrapin in general terms, taken, with slight modifications, from Huxley, the student is then led to examine briefly the general external appearance of the animal, and then clear, succinct, and, we should think, sufficiently full directions how to dissect the creature are given. The method pursued is not comparative, but special; we should look for the introduction of the comparative method in the succeeding parts. No illustrations of the soft parts are given. A frontispiece is devoted to good figures, showing the different parts of the skull. The book is useful, and one which is needed.

PACKARD'S ZOOLOGY, THIRD EDITION.³—The changes made in this edition consist mainly in the correction of errors, the results of suggestions and criticisms from naturalists and teachers. Among the changes and additions are references to Ryder's *Symphyla*,

¹*Handbuch der Palæontologie*. Herausgegeben von KARL A. ZITTEL. I. Band. 2. Abtheilungen. I. Lieferung, mit 200 original-holz-Schnitten. München und Leipzig, 1881. 8vo. Preis Marks 7.

²*Handbook of Vertebrate Dissection*. Part I. How to Dissect a Chelonian. By H. NEWELL MARTIN, Professor in the Johns Hopkins University, and WILLIAM A. MOALE, M.D. New York, Macmillan & Co., 1881. 12mo, pp. 94. 75 cts.

³*American Science Series*. Zoölogy for High Schools and Colleges. By A. S. PACKARD, Jr. Third edition, revised. New York, Henry Holt & Co., 1881. 12mo, pp. 719. \$3.